

REMARKS

In the Office Action, the Examiner indicated that claims 1-13 and 18-22 are pending in the application and the Examiner rejected all pending claims.

Rejection of Claims 1-13, 18-22 under 35 U.S.C. §103(a)

On page 2 of the Office Action, the Examiner rejected claims 1,5-6, 8-13 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,799,069 to Weston et al. in view of U.S. Patent No. 4,008,427 to Johnson.

On page 4 of the Office Action, the Examiner rejected claim 7 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,799,069 to Weston et al. in view of U.S. Patent No. 4,008,427 to Johnson and further in view of U.S. Patent No. 5,995,381 to Wakamatsu.

On page 5 of the Office Action, the Examiner rejected claims 2-4, 18-22 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,799,069 to Weston et al. in view of U.S. Patent No. 4,008,427 to Johnson and further in view of U.S. Patent No. 6,624,635 to Lui.

The Present Invention

The present invention is an improved telephone line power supply that creates high yield, low voltage power using power drawn from a telephone line and supplements the low power voltage with power from a host device, such as a laptop PC. Claim 1 (and each additional independent claim) specifically states circuitry components used in such a fashion that line power from a phone line is regulated to provide a constant output voltage. If needed, the line power

from the phone line is supplemented with power from the host device to maintain a constant power level. When the low voltage power drops below a predetermined level, the host device then supplements the low voltage power with power from its own power supply. The present invention finds particular utility in supplying power to electrical devices such as telephone modems attached to host devices such as laptop PCs and PDAs. By supplying power to an electrical device using power drawn from the telephone lines, the batteries within the host devices are not used for functions performed by that electrical device, thereby extending battery life in the host device. In a preferred embodiment, the power supply circuit comprises a polarity guard, a gyrator, an oscillator, a pulse circuit, an inductor, a startup circuit, a converter, a shunt regulator, and a combiner circuit. Using these components, the power supply circuit supplies line power suitable for an electric device from telephone line current. In addition, the combiner circuit enables a host power supply to provide supplemental power beyond that supplied by the power supply circuit to compensate for inadequate power supplied by the power supply circuit due to differing telephone line currents.

U.S. Patent No. 5,799,069 to Weston et al.

U.S. Patent No. 5,799,069 to Weston et al. ("Weston") teaches a method and apparatus for detecting the amount of power available from a phone line and for adjusting the clock rate and data transfer rate of a modem, or of another device used to transfer data over a phone line. The apparatus measures the voltage level of the phone line. After obtaining the voltage, the apparatus determines the amount of power available from the phone line. After determining these two

attributes of the phone line, a clock rate is selected for the transfer device; a call is placed from the device to the destination; a data transfer rate is selected based on the available voltage and power; and the data is transferred. The apparatus of Weston includes a power supply converter, but lacks a gyrator, an inductor, an oscillator and a pulse circuit as acknowledged by the Examiner.

U.S. Patent No. 4,008,427 to Johnson

U.S. Patent No. 4,008,427 to Johnson ("Johnson") teaches an electronic power supply using pulse width modulation voltage regulation to provide a regulated output range for a wide range of input voltages. Johnson utilizes a plurality of filters, each of which has one of a plurality of power inverters connected to its output. The apparatus further employs a control switch to change the level of voltage regulation and the turns ratio of the primary winding of the power supply output transformer, thereby obtaining increased tolerance to input voltage changes. The result is a power supply that can be used with a wide variety of voltage sources.

U.S. Patent No. 5,995,381 to Wakamatsu

U.S. Patent No. 5,995,381 to Wakamatsu ("Wakamatsu") teaches a switching regulator capable of suppressing a voltage ripple without increasing the size of the inductor and the capacitor of a smoothing circuit. The regulator is also capable of being miniaturized with only a small switching loss, reduced noise, and high efficiency. The switching regulator utilizes pulse width modulation control signals from a pulse width control circuit inputted to a series of delay

circuits. The delay circuits allow for transistor switches to be turned ON/OFF in a predetermined period, with only a slight pause period where both switches are turned OFF.

U.S. Patent No. 6,624,635 to Lui

U.S. Patent No. 6,624,635 to Lui ("Lui") teaches an uninterruptible power supply (UPS) for use with an Internet telephone or Internet telephone cable modem. The power supply has an AC/DC converter for producing converted DC power, and also a rechargeable battery. A DC output multiplexer selects one of the DC power sources (either the battery or the converted DC power) and furnishes the power to the load. The multiplexer has an input control signal for switching the DC source to battery, and an output indicator indicating when the battery is acting as the DC source. The load includes a controller which generates a testing function for measuring the reserve charge of the battery. Additionally, the controller measures the charge and discharge intervals of the battery to create performance information about the battery.

The Examiner has not Established a *prima facie* Case of Obviousness

As set forth in the MPEP:

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skilled in the art, to modify the reference or to combine reference teachings.

MPEP 2143

As noted above, the present invention provides for an improved telephone line power supply that creates high yield, low voltage power using power drawn from a telephone line,

regulating and supplementing the low power voltage with power from a host device, such as a laptop PC. Claim 1 of the present invention states:

“a pulse circuit coupled to said oscillator and coupled between the output of said gyrator and the input of said inductor; and
a converter coupled between the output of said inductor and the electrical device, said converter producing line power at an output.”

The pulse circuit in combination with the oscillator, gyrator, inductor and converter acts as a means to regulate the line power drawn from the phone, and if needed, supplement the power with that of a host device. Through this regulating and supplementing power levels, a constant output power is provided to the modem from either the phone line itself, or a combination of the phone line supplemented with power from the host device. This limitation, the regulation and supplementation of power from a host device, defines the present claimed invention as novel over the prior art, specifically Weston, Johnson, Wakamatsu and Liu as cited by the Examiner, whether considered alone or in any combination.

The Examiner acknowledges that Weston (note: Examiner refers to the cited prior art as Newton in the rejection of claim 1, but Applicant is assuming the Examiner intended to say Weston) lacks a gyrator, inductor and a pulse circuit. Weston lacks these elements as it is only concerned with measuring the voltage currently available in the phone line and adjusting data transfer and clock rates to match the available power in the phone line. In addition to having no teaching of the claimed elements, no teaching of regulating the power or supplementing the power by utilizing a pulse circuit is taught in Weston.

In fact, Weston teaches away from regulating or supplementing the power provided by the telephone lines. By creating a system where the modem adjusts data transfer rates to match a

provided power level, Weston is teaching a system where faults in the supplied power are accepted and handled by adjusting the clock rate of the data transfer rather than supplementing the power level. In other words, rather than regulating the power level and supplementing the power level if it drops too low, Weston instead lowers the performance level of the modem by lowering the data transfer rate to one that can function on the provided power level of the phone line. Nowhere does Weston suggest utilizing circuitry to regulate the voltage and power levels or to supply supplemental power in the event that the power level in the phone line drops. The present claimed structure of the present invention handles faults in the power supplied by the phone line by supplementing the power with that of a host device.

The Examiner looks to Johnson to teach the use of an oscillated pulse width modulation switching circuit. Johnson teaches a PWM switching circuit for use over a wide range of input voltages. The Examiner asserts that it would have been obvious to one of ordinary skill to modify Weston to include Johnson's PWM switching circuit. However, no motivation is shown in either Weston or Johnson for this modification. Weston merely accepts the current voltage and power levels and adjusts data transfer rates to deal with these levels. Nowhere in Weston is it taught that output power levels can be regulated to create a constant output power. In fact, as mentioned above, Weston teaches away from this concept. Additionally, Johnson makes no mention of utilizing his teachings in a phone line powered modem where data transfer speeds are adjusted based upon the input voltage and power levels, and neither teaches nor suggests the claimed structure.

Without such teaching or suggestion, it is improper to reject the claims based upon Weston or Johnson, either alone or in combination. Claims 1, 5-6, 8-13 patentably define over Weston in view of Johnson, and the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims based on these references.

The addition of Wakamatsu (103(a) rejection of claim 7) does not teach or suggest the claimed invention. Wakamatsu is concerned with a switching regulator utilizing PWM control signals. Similar to Johnson though, Wakamatsu provides no motivation to modify a system utilizing a phone line powered modem where data transfer speeds are adjusted based upon the input voltage and power levels, and neither teaches nor suggests the claimed structure. As noted above, Weston in view of Johnson does not teach the present claimed invention, and the addition of Wakamatsu provides no further teachings or motivation to modify the system of Weston in view of Johnson to achieve the present invention.

Without such teaching or suggestion, it is improper to reject the claims based upon Weston, Johnson, and Wakamatsu, either alone or in any combination. Claim 7 patentably defines over Weston in view of Johnson, and further in view of Wakamatsu, and the Examiner is respectfully requested to reconsider and withdraw the rejection of the claim based on these references.

Likewise, the addition of Liu (103(a) rejection of claims 2-4, 18-22) does not teach or suggest the claimed invention. Liu teaches the use of a UPS to supply power to an Internet telephone or modem. However, Liu provides no teaching of regulating or supplementing power drawn from a phone line to power the modem, nor the structure of the present invention. Liu

merely teaches a UPS that utilizes an AC/DC converter and a battery. One of those two DC power supplies is always powering the system, not a combination of the two. There is no teaching of combiner circuitry, as the Examiner asserts in claims 2, 18 and 21. Additionally, Liu provides no motivation for modifying a system utilizing a phone line powered modem where data transfer speeds are adjusted based upon the input voltage and power levels. As noted above, Weston in view of Johnson does not teach the present claimed invention, and the addition of Liu provides no further teachings or motivation to modify the system of Weston in view of Johnson to achieve the present invention.

Without such teaching or suggestion, it is improper to reject the claims based upon Weston, Johnson, and Liu, either alone or in any combination. Claims 2-4, 18-22 patentably defines over Weston in view of Johnson, and further in view of Liu, and the Examiner is respectfully requested to reconsider and withdraw the rejection of the claim based on these references.

Formal Drawings

The present application was filed with informal drawings. Applicant encloses herewith three sheets of formal drawings for the present application. Figure 1 has been split into Figures 1A and 1B and the specification has been amended to reflect this change. No new matter has been added.

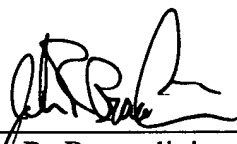
Conclusion

The present invention is not taught or suggested by the prior art. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims. An early Notice of Allowance is earnestly solicited.

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 19-5425.

Respectfully submitted

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Date



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